

Chun-Hsiang Chan

ASSISTANT PROFESSOR | TRANSDISCIPLINARY DATA SCIENTIST · PHD DOUBLE MS BSS

No. 162, Heping E. Rd., Taipei 106, Taiwan (Republic of China)

☎ (+886) 02-7749-1669 | ✉ chchan@ntnu.edu.tw | 🏠 toodou.github.io | 📱 toodou | 📺 CHUN-HSIANG CHAN | 🎓 Chun-Hsiang Chan

"I always aim to overcome my limitations."

Education

National Taiwan University (NTU)

Taipei, Taiwan

PH.D. IN GEOGRAPHY

Sep. 2015 - Jul. 2021

- **GPA:** 4.12/4.3 (76)
- Applied spatiotemporal data analysis to unveil the global airline alliance market with 50+ million of flight schedule data.
- Leveraged worldwide flight schedule data with complex network analysis to characterize the aviation market structure of global airline alliance.

Shih Chien University (USC)

Taipei, Taiwan

M.S., DEPARTMENT OF FOOD SCIENCE, NUTRITION, AND NUTRACEUTICAL BIOTECHNOLOGY

Sep. 2018 - 2020

- **GPA:** 4.0/4.0 (30)
- Revealed key physicochemical parameters of semi-gelatinized high amylose maize starch and quantified for the mechanism of slowly digestible and resistant starch during sonication by machine learning.

National Taiwan University (NTU)

Taipei, Taiwan

M.S., DEPARTMENT OF GEOGRAPHY

Jan. 2013 - 2015

- **GPA:** 3.75/4.3 (31)
- Identified seismic precursors with massive electromagnetic processing (2.7 millions) and frequency domain analysis to spatiotemporally predict the epicenter (24%) and occurrence time (68%) of seismic events one week before from 2013 to 2014 (magnitude >4).

National Taipei University of Education (NTUE)

Taipei, Taiwan

B.SOC.SCI., DEPARTMENT OF SOCIAL AND REGIONAL DEVELOPMENT

Sep. 2008 - 2012

- **GPA:** 3.79/4.3 (174)
- Determined debris-flow critical rainfall line for disaster prevention through ML techniques (family competition genetic algorithm, k-means clustering, and support vector machine) with 5-years of rainfall data and 21 geological parameters.

Work Experience

Department of Geography, National Taiwan Normal University

Taipei, Taiwan

PROJECTED-APPOINTED ASSISTANT PROFESSOR

2023 - Present

- Teaching subjects: Studies in Medical Geography, Urban Geographic Information System, Social Network Analysis, Web Crawler Practice, and Geographic Information System.
- Utilize agent-based modeling to simulate urban traffic flow under natural disaster.
- Elaborate the impact of natural hazards and COVID-19 pandemic on the large-scale population flow changes.
- Collaborated with Meta to characterize the mental health changes after COVID-19 pandemic and spatiotemporal population flow changes of 2023 Turkey earthquake.

Master Program in Intelligent Computing and Big Data, Chung Yuan Christian University

Taoyuan, Taiwan

ASSISTANT PROFESSOR

2022 - 2023

- Teaching subjects: Probability and Statistics, Big Data Fundamentals and Application, Introduction to Natural Science and Artificial Intelligence, Capstone Project, and Intro. to EECS Profession.
- Leverage graph neural network to characterize and refine the transportation structure in the urban area.
- Combine complex network analysis to characterize the spatiotemporal network structure of global heatwave events from 100+ years of data.

Taiwan Cybersecurity Foundry Company

Taipei, Taiwan

AI CONSULTANT

2022 - 2023

- Develop and deploy multiple machine learning models to automatically extract highly suspicious network security events from real-time massive flow alert data (531 millions), with an accuracy rate of 99% for each source.
- Combined with multiple time series models and federated learning to automatically detect abnormal network traffic (200 GB) for enterprise security management and meet privacy protection standards.

Far Eastern Memorial Hospital

Taipei, Taiwan

COLLABORATOR

2022 - Present

- Leverage machine learning to identify chest compression locations (left ventricle or aortic vessel) from timely A-line waveforms to improve the quality and efficiency of CPR.

Institute of Sociology, Academia Sinica

Taipei, Taiwan

DATA SCIENTIST

2019 - 2023

- Utilized complex analysis techniques to investigate the social network formulation through quantitative and qualitative approaches.
- Conducted spatiotemporal statistical analyses (SaTScan & LISA) to reveal the preferred locations of multi-religious landscapes with 400-year cultivation data in Taipei city.
- Applied Louvain community detection and ML techniques (PCA, clustering, and hierarchical clustering) to demystify the association between pilgrimage network and religious development history.

School of Journalism and Communication, The Chinese University of Hong Kong

Hong Kong, China

DATA SCIENTIST / A JOINT BUSINESS PLANNING ON SOCIAL MEDIA MARKETING

2019 - 2023

- Collected fine-dining brand's Facebook engagement data to demystify the pandemic impact on social media behavior (2019 to 2021).
- Applied ML techniques and time-series analysis to predict the reservation trend.

Department of Radiology, School of Medicine, Taipei Medical University

Taipei, Taiwan

COLLABORATOR | POSTDOCTORAL RESEARCH / DEPARTMENT OF RADIOLOGY, TAIPEI MUNICIPAL WANFANG HOSPITAL, TAIPEI

2022 - Present | 2021 - 2022

MEDICAL UNIVERSITY

- Characterized the prognosis of anabolic treatment (Romosozumab) through dual energy X-ray absorptiometry (DXA), quantitative computed tomography (QCT), and trabecular microarchitecture analysis.
- Evaluated the 3D trabecular microstructure parameters to reveal the relationship between areal bone mineral density (BMD) from DXA and volumetric BMD from QCT.
- Investigated the vertebral fracture assessment problems with a 2D plain-film radiograph and different 3D CT grading methods (conventional, consensus, and global search).
- Developed a 100% accuracy and rapid automated BMD and total body composition report generator to improve efficiency for the report production.

Department of Geography, NTU

Taipei, Taiwan

RESEARCH ASSISTANT & TEACHER ASSISTANT / GEOSPATIAL COMPUTATIONAL SCIENCE LABORATORY

2019 - 2021

- Timely estimated the global exposure risk mobile app for direct and transfer air passengers to meet WHO healthcare goals and traveler needs in the COVID-19 pandemic.
- Demystified the role of transfer activities in cross-province transmission after Wuhan city lockdown by web crawling 1+ million railway schedule data during the COVID-19 pandemic.
- Utilized survival analysis and community detection for H1N1 global disease transmission with 85+ million global flight schedules.

Department of Geography, NTU

Taipei, Taiwan

RESEARCH ASSISTANT & TEACHER ASSISTANT / REMOTE SENSING AND SPATIAL KNOWLEDGE LABORATORY

2013 - 2021

- Designed an automated low-frequency electromagnetic signal processing and pattern recognition system.
- Applied ML techniques in seismic precursor analysis and automated vertical stratum structure recognition.

CyberSecurity Technology Institute, Institute for Information Industry (III)

Taipei, Taiwan

DATA SCIENTIST ENGINEER / ANALYTICAL INTELLIGENCE SECTION, ARTIFICIAL INTELLIGENT RESEARCH AND DEVELOPMENT

2017 - 2019

CENTER

- Identified the spatiotemporal causal relationship of air pollution between stationary emission sources and ambient air quality.
- Developed a real-time and open-source cybersecurity monitoring system with Elasticsearch, Logstash, and Kibana (ELK), which analyzed the suspicious packets.
- Implemented a generative adversarial network (GAN) model to detect malicious behaviors with a 250 GB malware dataset.

Department of Social and Regional Development, NTUE

Taipei, Taiwan

RESEARCH ASSISTANT & TEACHER ASSISTANT / DEBRIS-FLOW DISASTER PREVENTION LABORATORY

2013 - 2016

- Leveraged social media advertising to promote crowd-sourcing debris-flow disaster platform and mobile app.
- Adopted several spatiotemporal hydrological analyses to timely characterize debris-flow disasters to inform experts and public users on a website and mobile app.

National Science and Technology Center for Disaster Reduction (NCDR)

Taipei, Taiwan

RESEARCH INTERN / SLOPELAND DIVISION

2011 - 2011

- Conducted spatial statistical methods to reveal the hidden debris flow and landslide areas from massive high-resolution remote-sensing images.

Department of Chemistry, NTU

Taipei, Taiwan

PROJECT STUDENT / JTC ORGANOMETALLIC RESEARCH LABORATORY

2010 - 2012

- Synthesized and characterized - from ligands to complexes [(o-C₅H₄N)C(CH₃)(R₁)NR₂]AlMe₂
- Characterized organometallic precursors by NMR techniques and X-Ray crystallography showing distorted tetrahedral structures.
- Catalyzed ring-opening polymerization of ϵ -caprolactone with the activities and the *M_n* values.
- Displayed the electronic and steric properties of distinct ligand influences toward molecular weight and PDI values.

Thesis

2021	Ph.D. Thesis , Characterizing Major Airline Alliances: A Network Analysis. <i>Department of Geography, National Taiwan University</i>	Taipei, Taiwan
2020	Master Thesis , Effects of Ultrasonic Treatment on Physical Properties and <i>in vitro</i> Digestibility of High Amylose Maize Starch. <i>Department of Food Science, Nutrition, and Nutraceutical Biotechnology, Shih Chien University</i>	Taipei, Taiwan
2015	Master Thesis , Applying Ultra Low Frequency Remote Sensing Techniques in the Earthquake Precursor Analysis —Using Taiwan as an Example. <i>Department of Geography, National Taiwan University</i>	Taipei, Taiwan
2011	Bachelor Thesis , Ring-Opening Polymerization of ϵ -caprolactone Using Organoaluminum Complexes Bearing Amido-pyridine Bidentate Ligand. <i>Department of Chemistry, National Taiwan University</i>	Taipei, Taiwan
2011	Bachelor Thesis , Establishing Debris-Flow Cluster and Modified Critical Rainfall Line. <i>Department of Social and Regional Development, National Taipei University of Education</i>	Taipei, Taiwan

Course Teaching

NATIONAL TAIWAN NORMAL UNIVERSITY

2023	Studies in Medical Geography , Department of Geography (Fall'23)	College of L.A.
2023	Urban Geographic Information System , Department of Geography (Fall'23)	College of L.A.
2023	Seminar on Geographical Studies , Department of Geography (Fall'23)	College of L.A.
2024	Web Crawler Practice , Department of Geography (Spr'24)	College of L.A.
2024	Social Network Analysis , Department of Geography (Spr'24)	College of L.A.
2024	Geographic Information System , Department of Geography (Fall'24)	College of L.A.

CHUNG YUAN CHRISTIAN UNIVERSITY

2022	Probability & Statistics 1 , Undergraduate Program in Applied Artificial Intelligence (Fall'22)	College of EE & IS
2022	Introduction to Natural Science and Artificial Intelligence , Department of Electronic Engineering (Fall'22)	College of EE & IS
2022	Big Data Fundamentals and Application , Master Program in Intelligent Computing and Big Data (Fall'22)	College of EE & IS
2022	Intro. to EECS Profession , BS in Electrical Engineering and Information Science (Fall'22)	College of EE & IS
2022	Capstone Project II , Undergraduate Program in Applied Artificial Intelligence (Fall'22)	College of EE & IS
2023	Probability & Statistics 2 , Undergraduate Program in Applied Artificial Intelligence (Spr'23)	College of EE & IS
2023	Programming for Artificial Intelligence , Undergraduate Program in Applied Artificial Intelligence (Spr'23)	College of EE & IS
2023	Complex Network Analysis , Master Program in Intelligent Computing and Big Data (Spr'23)	College of EE & IS
2023	Capstone Project I , Undergraduate Program in Applied Artificial Intelligence (Spr'23)	College of EE & IS

TAMKANG UNIVERSITY

2021	Advanced C Programming and It's Applications , Department of Artificial Intelligence (Fall'21)	College of Eng.
------	---	-----------------

Certifications, Skills & Interests

LANGUAGES

Chinese: Native; **English:** Fluent; **Russian:** Conversant; **Japanese:** Beginning; **Spanish:** Beginning

CERTIFICATIONS

Emergency Medical Technician: Level 1 (EMT1)

Certified Scanning Electron Microscopy Operator | Certified X-ray Diffraction Operator

Teaching Certificate for Elementary School | HACCP Quality Control (Primary & Advanced)

Tour Guide of General Examination and Tour Leader of General Examination

TBSA Certificate of Business Planning Proficiency (Elementary)

National Volleyball Referee (C) | Certified lifeguard and Certified Swimming Coach (Level B & C)

TECHNICAL SKILLS

Computer Science: Python, Matlab, R, C#, JavaScript, jQuery, jQueryUI, Android Development, HTML, MySQL, Nodejs, AngularJS, MongoDB, Elasticsearch, Spark, Facebook APIs and Twitter APIs

Geography: GIS (ArcGIS, QGIS, Super GIS), Spatial Statistics, Spatial Database, Complex Network Analysis, Gephi

Physics: Signal Processing (in time sequence and frequency) and Electromagnetic Analysis

Food Chemistry: Starch Science, Resistant Starch, Slowly Digestible Starch, *in vitro* Digestibility, SEM, XRD and HPSEC

Chemistry: Organometallic synthesis, NMR, IR, HPLC, ESI-MASS and pH meter

Design: Illustrator, Photoshop, Dreamwaver and Google SketchUp

Marketing: Google Analysis, Facebook Marketing and Google Trend

INTERESTS

Emergency Medicine, Chinese Medicine, Volleyball, Sport Science, Photography, Tourism, Web and Graphic Design

Research Projects

NATIONAL SCIENCE AND TECHNOLOGY COUNCIL

2023.11-2025.10	Principal Investigator , Spatiotemporal Dynamic Urban Mobility Network Modeling: A Graph Neural Network Approach with Integrating Multimodal Public Transportation and Heterogeneous Built Environment Factors (NSTC 112-2410-H-003 -182 -MY2)	NSTC
2019.08-2020.07	Principal Investigator , Market Identification and Realization of Global Airline Alliance Airport Network (MOST 108-2420-H-002 -025 -DR)	MOST

INDUSTRY COLLABORATION PROJECTS AND OTHERS

2025.01-2025.12	Co-Principal Investigator , Continuous Arterial Pressure Trajectory Data and Monitoring Frequency Using Arterial Catheters in Major Trauma Patients	NTUH
2024.06-2024.11	Principal Investigator , Spatiotemporal Complex Disaster Risk Stratification Project for Urban Road Network	NCDR
2024.01-2024.06	Principal Investigator , 2024 The Promotion Projects of Pipeline Irrigation Facilities - (Item 6) Improvement of Pipeline Precision Irrigation Demonstration Sites - Sub-item (D) Planning and Management of Demonstration Sites to Participate in the National Sustainable Development Award)	AERC
2024.01-2025.12	Co-Principal Investigator , The Effect of Socioeconomic Status and People Flow on Bystander Cardiopulmonary Resuscitation Rate	NTUH
2024.01-2024.12	Principal Investigator , Spatiotemporal Mobility Patterns on Car Flow and Population Flow	NTNU
2023.10-2023.11	Principal Investigator , Combine Open-source Encrypted Network Traffic Analysis Module For Network Attack Detection	NCDR
2023.01-2023.05	Principal Investigator , CAP Data Mining and Data Service Module Extension for Disaster Prevention	Datarget Global Inc.

Honors & Awards

RESEARCH

2020	The Second Prize , 2020 Canada - Taiwan Bilateral Conference on Nutrition, Health, Benefit and Innovative Processing of Whole Grains and Pulses	Taichung, Taiwan
2019	The Third Prize , 2019 International Conference on Grain Industry Development and Annual Meeting of Taiwan Grain Industry Association (TGIA)	Taichung, Taiwan
2018	Young Scientist Award , 2nd CiC Students' Workshop: Driving Sustainable Development	Tsukuba, Japan
2014	The First Prize , The 15th Cross-Strait Symposium on Environmental Resources and Ecological Conservation	Zhangjiajie, China
2013	The Second Prize , The 14th Cross-Strait Symposium on Environmental Resources and Ecological Conservation	Kunming, China
2011	The First Prize , The 12th Cross-Strait Symposium on Environmental Resources and Ecological Conservation	Nanchang, China
2011	Selected (Highest) , Undergraduate Student Thesis Presentation in Class of 2012	NTUE, Taiwan

COMPETITION

2014	Third Prize , 2014 Disaster Prevention and Warning Application in APP Competition	Taipei, Taiwan
------	--	----------------

SCHOLARSHIP AND GRANTS

2020	NetSci-X 2020 Travel Grants , NetSci-X 2020, Waseda University	Japan
2020	College of Science Travel Grants for International Conference , College of Science, NTU	Taiwan
2020	Honorary Membership , The Phi Tau Phi Scholastic Honor Society of the Republic of China	Taipei, Taiwan
2020	Academic Excellence Award , Department of Food Science, Nutrition, and Nutraceutical Biotechnology, USC	Taipei, Taiwan
2019-2020	Grant for Ph.D. Candidates in the Humanities and Social Sciences to Write Doctoral Thesis , Ministry of Science and Technology	Taiwan
2019	College of Science Travel Grants for International Conference , College of Science, NTU	Taiwan
2018-2019	Presidential Award , Department of Food Science, Nutrition, and Nutraceutical Biotechnology, USC (Fall'18, Spring'19)	Taipei, Taiwan
2018	Travel Grants for 2018 Tsukuba Global Science Week , NTU and Tsukuba University	Taiwan
2017-2018	Graduate Student Representative of College of Science , College of Science, NTU	Taiwan
2014	Budget Supplement for Graduated Student Attending International Conference , Ministry of Science and Technology	Taiwan
2010-2011	Presidential Award , Department of Social and Regional Development, NTUE (Spring'10, Fall'11)	Taipei, Taiwan

Invited Talks

Dec, 2024	Invited Speaker , How Does Generative AI Change Our Life?	<i>TED Talk</i>
Oct, 2024	Invited Speaker , The Applications of Social Network Analysis in Geography	<i>National Chengchi University</i>
Oct, 2024	Invited Speaker , Machine Learning Algorithm	<i>National Taipei University of Education</i>
Sep, 2024	Invited Speaker , Fundamentals of Artificial Intelligence	<i>National Taipei University of Education</i>
Mar, 2024	Invited Speaker , Spatiotemporal Data Mining Applications and Challenges	<i>National Taipei Normal University</i>
Mar, 2024	Invited Speaker , The Applications of Transportation Data in Geography	<i>National YangMing ChiaoTung University</i>
Mar, 2024	Invited Speaker , Healthcare Big Data, Establishment, Analysis, Connection, Validation and Applications	<i>Kaoshiung Medical University</i>
Mar, 2024	Invited Speaker , Find Your Research Track	<i>Chinese Culture University</i>
Feb, 2024	Invited Speaker , Applying Spatiotemporal Data Mining Techniques for the Disease Prevention and Policy Planning of a Large-scale Pandemic	<i>Academia Sinica</i>
Nov, 2023	Invited Speaker , Applying Geographic Information System in Social Work - Social Resident and Spatial Analysis	<i>Providence University</i>
Oct, 2023	Invited Speaker , The COVID-19 Impacts on Spatiotemporal Public Transportation Patterns	<i>National Taiwan Normal University</i>
Sep, 2023	Invited Speaker , EMS/Resuscitation Study: Vital Signs and Signals	<i>National Taiwan University Hospital</i>
Sep, 2023	Invited Speaker , Timely exposure risk at airports app for air travelers –using the COVID-19 pandemic as an example	<i>Chung Yuan Christian University</i>
Sep, 2023	Invited Speaker , The COVID-19 Impacts on Spatiotemporal Public Transportation Patterns	<i>National Science and Technology for Disaster Reduction</i>
May, 2023	Invited Speaker , The Training Paths and Challenges of Interdisciplinary Data Scientists	<i>National Taiwan Normal University</i>
May, 2023	Invited Speaker , The Future Image of Interdisciplinary Research Capabilities	<i>Chung Yuan Christian University</i>
Nov, 2022	Invited Speaker , The Importance of Spatial Analysis in Epidemic Prevention Policy	<i>Chinese Culture University</i>
Oct, 2022	Invited Speaker , Trial & Error Building an Interdisciplinary Life - Beyond Your Limits	<i>National Taipei University of Education</i>
Nov, 2021	Invited Speaker , The Roles of Spatial Analysis during the COVID-19 Pandemic	<i>Chinese Culture University</i>
Jan, 2020	Invited Speaker , Characterizing Major Airline Alliances: A Network Analysis	<i>Kyoto University</i>
Feb, 2019	Keynote Speaker , 2019 Present Sociology under Big Data	<i>Academia Sinica</i>
Sep, 2014	Keynote Speaker , Define an Expectation for Your University Life	<i>NTUE</i>
Apr, 2014	Keynote Speaker , 2014 Disaster Prevention and Warning Application in APP Competition	<i>TICC, Taipei</i>

Academic Service

SCI	Reviewer , JMIR Public Health and Surveillance	<i>Journal Article</i>
SCI	Reviewer , JMIR Research Protocols	<i>Journal Article</i>
SCI	Reviewer , Journal of Medical Internet Research	<i>Journal Article</i>
SCI	Reviewer , JMIR Medical Informatics	<i>Journal Article</i>
SCI	Reviewer , Physica Scripta	<i>Journal Article</i>
SCI	Reviewer , Environmental Research Letters	<i>Journal Article</i>
SCI	Reviewer , Environmental Research Communications	<i>Journal Article</i>
SCI	Reviewer , PLoS One	<i>Journal Article</i>
SCI	Reviewer , Paddy and Water Environment	<i>Journal Article</i>
SCI	Reviewer , Food Hydrocolloids	<i>Journal Article</i>
SCI	Reviewer , Food Chemistry	<i>Journal Article</i>
SCI	Reviewer , The Spine Journal	<i>Journal Article</i>
SCI	Reviewer , European Radiology	<i>Journal Article</i>
SCI	Reviewer , European Heart Journal	<i>Journal Article</i>
SCI	Reviewer , Insights into Imaging	<i>Journal Article</i>
SCI	Reviewer , International Journal of Health Geographics	<i>Journal Article</i>
SCI	Reviewer , International Journal of Environmental Research and Public Health	<i>Journal Article</i>
SCI	Reviewer , ISPRS International Journal of Geo-Information	<i>Journal Article</i>
SCI	Reviewer , Applied Sciences	<i>Journal Article</i>
SCI	Reviewer , Diagnostics	<i>Journal Article</i>
SCI	Reviewer , Journal of Sensors	<i>Journal Article</i>

Selected Publications

Peer-Reviewed Journal Papers (* corresponding author)

1. **Chun-Hsiang Chan**, Tzai-Hung Wen (2025). Timely Personalized Exposure Risk Estimation for Air Travelers. *IEEE Transactions on Computational Social Systems*. 8(2), 72; <https://doi.org/10.1109/TCSS.2024.3523336> (**SCI IF: 4.6**; Q1 6/32 in Computer Science, Cybernetics; 51/250 in Computer Science, Information Systems)
2. **Chun-Hsiang Chan**, Wei-Hsian Chi, Fei-Ying Kuo, Yi-Yun Chen (2024). Spatiotemporal topology of religious spread in a multi-religious metropolis: A historical religious profile of Taipei City in Taiwan from 1660 to 2020. *The Geographical Journal*. 8(2), 72; <https://doi.org/10.1111/geoj.12609> (**SSCI IF: 3.4**; Q1 16/172 in Geography)
3. Sheng-En Chu, Chun-Yen Huang, Chiao-Yin Cheng, **Chun-Hsiang Chan**, Hsuan-An Chen, Chin-Ho Chang, Kuang-Chau Tsai, Kuan-Ming Chiu, Matthew Huei-Ming Ma, Wen-Chu Chiang, Jen-Tang Sun (2024). Cardiopulmonary Resuscitation Without Aortic Valve Compression Increases the Chances of Return of Spontaneous Circulation in Out-of-Hospital Cardiac Arrest: A Prospective Observational Cohort Study. *Critical Care Medicine*. 52(9):p 1367-1379; <https://doi.org/10.1097/CCM.0000000000006336> (**SCI IF: 7.5**; Q1 6/55 in Critical Care Medicine)
4. Wei Chien Benny Chin, **Chun-Hsiang Chan*** (2023). Analyzing the Trends of COVID-19 and Human Activity Intensity in Malaysia. *Tropical Medicine and Infectious Disease*. 8(2), 72; <https://doi.org/10.3390/tropicalmed8020072> (**SCI IF: 3.0**; Q1 7/28 in Tropical Medicine)
5. **Chun-Hsiang Chan**, Wen-Chi Huang, Yi-Chien Lu, Hsing-Fen Hsiao, and Wing P. Chan (2021). BatchBMD as an Efficient and Accurate Dual-Energy X-ray Absorptiometry Report Generator. *Diagnostics*. Vol.11(12), 2403. <https://doi.org/10.3390/diagnostics1122403> (**SCI IF: 3.1**; Q1 59/392 in Medicine, General, and Internal)
6. **Chun-Hsiang Chan**, Tzai-Hung Wen (2021). Revisiting the Effects of High-speed Railway Transfers in the Early COVID-19 Cross-province Transmission in Mainland China. *International Journal of Environmental Research and Public Health*. Vol.18(12), 6394. <https://doi.org/10.3390/ijerph18126394> (**SSCI IF: 4.799**; Q1 45/182 in Public, Environmental & Occupational Health)
7. **Chun-Hsiang Chan**, Ri-Gui Wu, Yi-Yuan Shao (2021). The Effects of Ultrasonic Treatment on Physicochemical Properties and *in vitro* Digestibility of Semigelatinized High Amylose Maize Starch. *Food Hydrocolloids*. Vol.119, 106831. <https://doi.org/10.1016/j.foodhyd.2021.106831> (**SCI IF: 11.3**; Q1 3/74 in Applied Chemistry; Q1 4/173 in Food Science & Technology)
8. Wei-Hsian Chi, Fei-Ying Kuo, Chang-Hui Chi, Shi-Chiang Lin, **Chun-Hsiang Chan** (2021). Spatial-temporal Analysis of Pilgrimage Network of Mazu-temples in Yunlin and Chiayi County: A Study on Geographical Distribution of Pilgrimage Group. *Journal of Geographical Science*. Vol.98, 45-82. [https://doi.org/10.6161/jgs.202104_\(98\).0003](https://doi.org/10.6161/jgs.202104_(98).0003) (**TSSCI**)
9. **Chun-Hsiang Chan**, Tzu-How Chu, Jiun-Huei Protty Wu, Tzai-Hung Wen (2021). Spatially Characterizing Major Airline Alliances: A Network Analysis. *ISPRS International Journal of Geo-Information (IJGI)*. Vol.10(1), 38. <https://doi.org/10.3390/ijgi10010038> (**SCI IF: 3.0**; Q2 29/65 in Geography; Q2 108/252 in Computer Science, Information Systems)
10. Yuan-Fang Tsai, **Chun-Hsiang Chan**, Keng-Han Lin, Wen-Ray Su, Jinn-Chyi Chen (2017, Jul). New Debris Flow Critical Rainfall Line Setting via Cluster Analysis and Support Vector Machine After the Chi-Chi Huge Earthquake. *2017 13th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD)(EI)*. 970-975.

Under Review Peer-Reviewed Journal Papers (* corresponding author)

1. Shan-Ying Yang, Wei Chien Benny Chin, Tzai-Hung Wen, Pei-Fen Kuo, **Chun-Hsiang Chan*** (Under Review). Understanding the Role of International Flight Networks in Disease Spreading: towards Global Spatial Epidemic Prevention Zones and Hierarchical Disease Control Policies.
2. Li-Heng Chen, **Chun-Hsiang Chan*** (Under Review). Beyond the Screen: The Influence of Communication Forms.
3. **Chun-Hsiang Chan**, Wing P. Chan (Under Review). Demystifying Paradoxical Treatment Outcomes in Patients with Severe Osteoporosis: Why Do DXA Scores Improve Yet Fracture Risk Persists?
4. **Chun-Hsiang Chan**, Yi-Chien Lu, Yu-Pin Chen, Yi-Jie Kuo, Wing P. Chan (Under Review). The Trabecular Microarchitectural Changes in a Woman with Very-high-risk Osteoporosis Treated with Romosozumab.
5. **Chun-Hsiang Chan**, Ai-Ling Hsu, Yi-Chien Lu, Russell O. Kosik, Yi-Ping Chao, Wing P. Chan (Under Review). Unveiling the Vertebral Fracture Grading Gap between Two- and Three-dimensional Approaches on CT scans.
6. **Chun-Hsiang Chan**, Ri-Gui Wu, Yi-Yuan Shao (Under Review). Physicochemical Properties, *in vitro* Digestibility, and Estimated Glycemic Index of Ningbo Rice Cakes with Partial Resistant Starch Substitutions.

Peer-Reviewed Conference Papers

1. **Chun-Hsiang Chan**, Wei-Hsian Chi, Fei-Ying Kuo, Yi-Yun Chen (Nov, 2024) Spatial-Temporal Dynamics of Religious Development in the Taipei Metropolitan Area. *The 15th International Conference of Digital Archives and Digital Humanities (DADH 2025)*, Taipei, Taiwan.
2. **Chun-Hsiang Chan**, Yi-Chien Lu, Hao-Yang Wu, Wing P. Chan (Apr, 2024) Trends of Vertebral Height Loss in Normal Older Population. *2024 WCO-IOF-ESCEO Congress*, London, United of Kingdom.
3. **Chun-Hsiang Chan**, Wei-Hsian Chi, Yi-Yun Chen (Apr, 2024) Religious Spread in a Multi-Religious Metropolitan: A Historical Religious Profile of Taipei City in Taiwan from 1660 to 2020. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
4. Yun-Hsin Wen, **Chun-Hsiang Chan** (Apr, 2024) Urban Human Mobility Forecasting with Multimodal Transportation by Using Graph Neural Network with Heterogeneous Factors. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
5. Chien-Yi Lo, **Chun-Hsiang Chan** (Apr, 2024) Using Graph Generative Adversarial Networks for Forecasting Metro Passenger Flow. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
6. Yi-Chia Cheng, **Chun-Hsiang Chan** (Apr, 2024) Characterizing the Population Flow Patterns After the 2023 Turkey-Syria Earthquake. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
7. Shan-Yin Yang, **Chun-Hsiang Chan** (Apr, 2024) Determining the Global Epidemic Prevention Zone for Targeting Potential High-risk Origin Countries Through Global Aviation Network: A Case Study of the COVID-19 Pandemic. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
8. Po-Yu Yeh, **Chun-Hsiang Chan** (Apr, 2024) DRPT: A new technique for evaluating the robustness of synthetic data based on a box-counting algorithm. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.

9. Yo-Yun Cheng, **Chun-Hsiang Chan** (Apr, 2024) Spatio-Temporal Deep Learning for Urban Mobility: Traffic and Pedestrian Flow Prediction with MRT Data. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
10. Au-Hua Po, **Chun-Hsiang Chan** (Apr, 2024) Reveal the Global and Regional Impacts of World Events on CPI through Global Trade Network Properties: Using the COVID-19 Pandemic as an Example. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
11. Wei-Hsian Chi, **Chun-Hsiang Chan**, Yi-Yun Chen (Nov, 2023) Religious Landscape Analysis in Taipei Metropolitan Area. *Landscapes, Religion and the Digital Humanities*, Academia Sinica, Taiwan.
12. **Chun-Hsiang Chan** (Aug, 2023) Characterizing Global Heatwave Spatiotemporal Changes: A Complex Network Approach. *Climate Hotspots in Action (CHiA) Forum*, Academia Sinica, Taiwan.
13. **Chun-Hsiang Chan**, Yi-Chien Lu, Hao-Yang Wu, Wing P. Chan (May, 2023) Vertebral Trabecular Microarchitecture in Older Health Asians. *2023 WCO-IOF-ESCEO congress*, Barcelona, Spain.
14. **Chun-Hsiang Chan**, Wei Chien Benny Chin, Fei-Ying Kuo (Mar, 2023) Does Recurring Pandemic Waves Have a Long-term Impact on Travel Willingness: a National Scale Investigation. *2023 Association of American Geographers' Annual Meeting*, Denver, United States.
15. Tzu-Hsuan Chuang, **Chun-Hsiang Chan**, Yi-Yuan Shao (Oct, 2022) Maximize Resistant Starch from Waxy Maize Starch: An Integration of Debranching and Storage Temperature. *8th International Conference on International Dietary Fibre 2022*, Belgium.
16. **Chun-Hsiang Chan**, Yi-Chien Lu, Hao-Yang Wu, Wing P. Chan (Sep, 2022) Temporal Effects of Romosozumab on Vertebral Trabecular Quality: A Pilot Case Report. *American Society for Bone and Mineral Research 2022 Annual Meeting*, Austin, Texas, United States.
17. **Chun-Hsiang Chan**, Shih-Chia Wu (Jul, 2022) The Impact of Marketing Communication Strategies on Online Consumer-brand Community Engagement During COVID-19 Pandemic. *29th Annual BledCom Conference*, Bled, Slovenia.
18. **Chun-Hsiang Chan**, Wing P. Chan (Mar, 2022) The Hollowed Trabecular Phenomenon –Demystifying the Trabecular Aging Process in Healthy Older Adults Using Multidimensional Approaches. *WCO-IOF-ESCEO Virtual Congress 2022*, Berlin, Germany.
19. **Chun-Hsiang Chan**, Tzai-Hung Wen (Oct, 2021). Timely exposure risk at airports app for air travelers –using the COVID-19 pandemic as an example. *2021 Asian Seminar in Regional Science –Regional Science in Post-Pandemic Era*, Taichung, Taiwan.
20. **Chun-Hsiang Chan**, Shih-Chia Wu (Jul, 2021) Reversible or Irreversible User Engagement Behavior Changes During COVID-19 Pandemic: a Case Study of a Top Restaurant Brand in Taiwan. *28th Annual BledCom Conference*, Bled, Slovenia.
21. **Chun-Hsiang Chan**, Ri-Gui Wu, Yi-Yuan Shao (Sep, 2020) Ultrasonic Treatment on Starch Granule Morphology and Physicochemical Properties of High Amylose Maize Starch. *2020 Canada - Taiwan Bilateral Conference on Nutrition, Health, Benefit and Innovative Processing of Whole Grains and Pulses*, Taichung, Taiwan.
22. 吳優、詹竣翔、邵貽沅 (2020 年 6 月) 探討超音波處理對半糊化之糯性玉米澱粉物性和消化性的影響。台灣農業化學會第 58 次會員大會。臺北，臺灣。
23. 吳優、詹竣翔、邵貽沅 (2020 年 6 月) 探討去支鏈、超音波和回凝處理對澱粉物性和消化性的影響。台灣農業化學會第 58 次會員大會。臺北，臺灣。
24. **Chun-Hsiang Chan**, Tzai-Hung Wen, Tzu-How Chu, Jiun-Huei Protty (Jan, 2020) Characterizing the Roles of Nodes in the Global Airline Alliance Network: Considering Structure Equivalence and Geographic Proximity. *NetSci-X 2020*, Tokyo, Japan.
25. **Chun-Hsiang Chan**, Ri-Gui Wu, Yi-Yuan Shao (Sep, 2019) Effect of Pregelatinized Temperature on the Morphology and Resistant Starch of High Amylose Corn Starch *2019 International Conference on Grain Industry Development and Annual Meeting of Taiwan Grain Industry Association (TGIA)*, Taichung, Taiwan.
26. Ri-Gui Wu, **Chun-Hsiang Chan**, Yi-Yuan Shao (Sep, 2019) Quality of Ningbo Rice Cake with Debranched Starch. *2019 International Conference on Grain Industry Development and Annual Meeting of Taiwan Grain Industry Association (TGIA)*, Taichung, Taiwan.
27. **Chun-Hsiang Chan**, Tzu-How Chu, Jehn-Yih Juang, Ching-Hao Mao, Shin-Ying Huang (Apr, 2019) Causal Relationship on Sulfur Dioxide Between Stationary Emission Source and Ambient Air Quality: a Data-driven Approach. *EGU General Assembly 2019*, Vienna, Austria.
28. **Chun-Hsiang Chan**, Tzu-How Chu, Jiun-Huei Protty Wu (Apr, 2017) Statistical Analysis of Very Low Frequency Electromagnetic Signal for Earthquake Precursor Anomalies. *EGU General Assembly 2017*, Vienna, Austria.
29. Yuan-Fan Tsai, **Chun-Hsiang Chan**, Yuan-Ning Chan (Jul, 2016) To Establish an Integrative Information System for Debris-Flow Disaster. *Asian Conference on Civil, Material and Environmental Sciences*, Hokkaido, Japan.
30. Yuan-Fan Tsai, **Chun-Hsiang Chan**, Yi-Ting Huang, Jie-Ming Guan, Cheng-Hsin Chang (Jun, 2016) Establishing Optimal YouBike Route Planning for Cuisine in Smart Phone Application. *Hong Kong International Conference on Social Science 2016*, Hong Kong.
31. 蔡元芳、詹媛甯、周煥傑、黃竹頤、林庚翰、詹竣翔 (2015 年 10 月)。跨平台整合之防災即時資訊網建置。第十九屆海峽兩岸水利科技交流研討會。上海，中國。
32. **Chun-Hsiang Chan**, Tzu-How Chu, Jiun-Huei Protty Wu (Jun, 2015) Earthquake Precursor Detection for Epicenter Spatial Analysis and Estimation. *International Conference on Earth Observations and Societal Impacts 2015 (ICEO&SI 2015)*, Kaohsiung, Taiwan.
33. Wen-Xiang Wang, Lan-Xiang Wang, Ting Jin, Li-Ting An, Hui-Ying Wang, Tzu-How Chu, **Chun-Hsiang Chan**, Rei-Yuan Wang (Jun, 2015) The Earthquake Precursor Detecting Method Applied in the 2011 Tohoku Earthquake. *International Workshop on Earthquake Preparation Process 2015 - Observation, Validation, Modeling, Forecasting - (IWEF2)*, Chiba, Japan.
34. Yuan-Fan Tsai, **Chun-Hsiang Chan** (Jun, 2015) To Establish an Interactional Real-Time Debris-Flow Disaster Information System and Extension. *6th International Conference on Debris-Flow Hazards Mitigation: Mechanics, Prediction and Assessment (DFHM6)*, Tsukuba, Japan.
35. 管潔明、黃翊婷、蔡元芳、詹竣翔 (2015 年 5 月) 微笑單車安全路線規劃應用於智慧型手持裝置美食 APP。第 19 屆臺灣地理國際學術研討會。臺北，臺灣。
36. 林庚翰、謝青恩、吳昊宸、蔡元芳、詹竣翔 (2015 年 5 月) MFAs 慢跑社群手持裝置 APP 之開發。第 19 屆臺灣地理國際學術研討會。臺北，臺灣。
37. 王瑞麟、蔡元芳、詹竣翔 (2015 年 5 月) 自行車停車空間規劃模式之建置-以台北市大安區為例。第 19 屆臺灣地理國際學術研討會。臺北，臺灣。
38. Yuan-Fan Tsai, **Chun-Hsiang Chan**, Chu-Yi Huang, Huan-Chieh Chou (Apr, 2015) Crowdsourcing Oriented Ontology Applies in Instant Debris-flow Disaster Information Platform in Web and Smart Phone Application. *EGU General Assembly 2015*, Vienna, Austria.
39. **Chun-Hsiang Chan**, Tzu-How Chu, Jiun-Huei Protty Wu, Ruei-Yuan Wang, Yi-Shiang Shiu (Jul, 2014) Establishing VLF Electromagnetic Monitoring System for Earthquake Precursors Analysis and Application. *The 15th Crossstrait Symposium on Environment, Resource and Ecological Conservation*, Zhangjiajie, China.
40. Tzu-How Chu, Ruei-Yuan Wang, **Chun-Hsiang Chan**, Yi-Shiang Shiu (May, 2014) The Study on the Prediction of Earthquake Precursors in Taiwan by Using the Monitoring Systems of Low-Frequency Electromagnetic Wave. *The 9th Taipei International Digital Earth Symposium*, Taipei, Taiwan.

41. **Chun-Hsiang Chan**, Tzu-How Chu, Jiun-Huei Protu Wu (Apr, 2014) VLF Electromagnetic Signal Analysis in Seismic Epicenter Application. *2014 Association of American Geographers' Annual Meeting*, Tampa, Florida, United States.
42. Yuan-Fan Tsai, **Chun-Hsiang Chan**, Yu-Qian Zhang, Wan-Jou Lu, Chi-Chen Yeh (Mar, 2014) Taipei City Marketing Application in Smart Phone Application Operation and Design. *The 2nd International Symposium on Education, Psychology, Society and Tourism (ISEPST 2014)*, Tokyo, Japan.
43. **Chun-Hsiang Chan**, Yuan-Fan Tsai (Jul, 2013) Allocating Reforestation Areas for Variation of Soil Erosion Maximization: MCLP Formulation and Pre-emptive Goal Programming. *The 14th Cross-strait Symposium on Environment, Resource and Ecological Conservation*, Kunming, Yunnan, China.
44. Yuan-Fan Tsai, Yu-Lun Cheng, **Chun-Hsiang Chan** (Jun, 2012) Setting up the Critical Rainfall Line For Debris-flow Via Support Vector Machines. *The International Conference on Earth Observations and Societal Impacts 2012 (ICEO-SI 2012)*, Taipei, Taiwan.
45. **Chun-Hsiang Chan**, Yuan-Fan Tsai (Jul, 2011) Establishing Debris-flow Cluster and Modified Critical Line. *The 12th Cross-strait Symposium on Environment, Resource and Ecological Conservation*, Nanchang, Jiangxi, China.

Books, Reports, and News

1. [Book Chapter] **Chun-Hsiang Chan**, Jehn-Yih Juang, Tzu-How Chu, Ching-Hao Mao, Shin-Ying Huang (2023) A Novel Evaluation of Air Pollution Impact from Stationary Emission Sources to Ambient Air Quality via Time-series Granger Causality. *Earth Data Analytics for Planetary Health*. p33-53. In English. Springer Nature Singapore Pte Ltd.
2. [Book] 金威澄、李正哲、李冠儒、詹竣翔、江承頤、曾毓媛、王立宏、吳連哲、廖德融、劉柏賢、沈祥茵 (2021 年 11 月 17 日) 當代英雄從台灣出發-台大學生的俄羅斯與後蘇聯行旅 (Герои нашего времени - С Тайваня в Россию и постсоветское пространство)。中文：第 42-45 頁 & 第 138-143 頁。俄文：第 25-28 頁 & 第 87-91 頁。臺北市：櫻桃園文化出版有限公司。
3. [Article] 詹竣翔 (2021 年 7 月 2 日) 臺大地理系 2021 年楊楠子人文學術講座：人口動態的前沿研究暨地理職涯發展的交流。國立臺灣大學理學院院刊第 48 期：國際交流。臺北市：國立臺灣大學理學院。 <https://bit.ly/3wsGSOH>
4. [Report] 詹竣翔、邵貽沅 (2021 年 4 月 15 日) 參加 2021 年 ICBC 國際研討會-線上會議報告。第 7-11 頁臺北市：中華穀類食品工業技術研究所。
5. [News] 溫在弘、詹竣翔 (2020 年 4 月 27 日) 10 大關鍵圖表掌握新冠肺炎產經衝擊。天下雜誌。 <https://bit.ly/2PckaQF>
6. [News] 溫在弘、詹竣翔、郭飛鷹 (2020 年 4 月 6 日) 防堵疫情擴散台大研究團隊：生活圈防疫勝過封城。東森新聞。<https://bit.ly/35bTrWA>
7. [News] 溫在弘、詹竣翔 (2020 年 3 月 5 日) 【口罩下的人 #02】封城能擋疫情？台大教授算高鐵班次發現：周邊城市確診人數是其他城市的 1.5 倍。未來城市 | 天下雜誌。 <https://bit.ly/33ym7bK>
8. [News] 朱子豪、詹竣翔 (2015 年 1 月 20 日) 測「超低頻電磁波」可預測地震？民視新聞。 <https://bit.ly/3HHjzXg>